New product co-creation through practice-based innovation: a case study

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Objectives. *In an increasing competitive environment which facilitates rapid changes in consumers' preferences and needs, an organization's ability to acquire and exploit knowledge is of vital importance (West and Bogers, 2014). Hence, through continuous interaction with both users and external stakeholders, an organization should be able to simultaneously utilise knowledge obtained through everyday work experiences (practice-based), and knowledge updated by research advances (research-based), (Dougherty, 2003, 2004; Ellström, 2010) to remain connected with the market's needs and trends.*

Practice-based knowledge enables organizations to draw stimulus from information collected by employees through interactions with stakeholders and clients during their everyday working practice. Indeed, Dougherty (2004) has commented upon the fact that knowledge used by organizations to develop new products stems from the daily operations, routines, and practices that employees regularly perform. Furthermore, knowledge could actually be implicitly collected by all individuals within an organization by virtue of inevitably recurrent personal interactions, which tend to be commonplace in day-to-day operations (Dougherty, 2003).

Consequently, the concurrent use of both practice-based and research-based knowledge is vital to an organization's market adaptation allowing the company to align itself with users' needs and the current market (Harmaakorpi and Melkas, 2012; Marabelli et al., 2012; Skålén et al. 2014).

Recently, social product development (SPD) has received an increasing attention from scholars and practitioners who have acknowledged it to be a new, and more efficient route through which to improve products through the optimization of the knowledge acquisition process (Bertoni et al., 2012; Forbes and Schaefer, 2017; Wu et al., 2015). Abhari et al. (2016) note that SPD is based on the inclusion of all socially-engaged stakeholders in the ideation, development, validation, and commercialization of new products. As part of the SPD approach, organizations must rely on what has been termed 'mass collaboration'. This type of collective action finds innovative answers to complex problems by harnessing the ideas of many individuals. SPD differs from Open Innovation in that, in order to gather possible solutions, Open Innovation requires organizations to designate a particular issue to a structured network of stakeholders, whereas, with regards to SPD, suggestions concerning both issues and solutions are autonomously provided by unorganized stakeholders (Bertoni et al., 2012).

Dougherty (2004) stresses that, in order to facilitate an effective process through which a new product can be developed, research-based and practice-based knowledge must be integrated. This approach enables innovative offerings to be put forward to customers in utilising knowledge obtained through direct engagement with them (Bertoni et al., 2012; West and Bogers, 2014).

However, there continues to be a shortage of theoretical and empirical papers outlining the synergism between the use of these two forms of knowledge, and the ways in which new products and services can be socially developed (Ellström, 2010; Forbes and Schaefer, 2017), in spite of an increasing amount of literature concerning alternative new product development models (Marzi et al., 2017; Bianchi et al., 2018). More specifically no other published studies can be seen to verify whether or not social practices, such as retrospective workplace examination, provide a means through which research-based knowledge and practice-based knowledge can be successfully integrated (Nilsen and Ellström, 2012).

Leading on from this, our study assesses the interplay between the two types of knowledge by questioning how this phenomenon manifests itself in social working practices. Through this, our study interrogates the ways in which this interplay is able to enable successful SPD endeavours (Bertoni et al., 2012) and, furthermore, highlights the primary issues faced by a company throughout the SPD process (Forbes and Schaefer, 2017).

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Methodology. *A qualitative case study method was selected (Patton, 2002; Riege, 2003; Yin, 2017) to facilitate the comprehensive analysis of the many ways through which practice-based knowledge can be extrapolated from social interactions and subsequently integrated with pertinent research-based knowledge. The inductive case study is indeed a suitable methodology for the in-depth exploration of how the interplay between practice-based knowledge (which is usually implicit) and research-based based knowledge (which is usually explicit) generates new knowledge to support SPD (Eisenhardt, 2011). The case methodology also facilitates a more thorough comprehension of contextual settings (Yin, 2017) – an important consideration as the observed phenomenon cannot be removed from its context.*

This research centred around a large Dutch food service company which commenced operation 25 years ago. This company caters for educational institutions and maintains vending machines. Early in 2017, a large Italian catering organization, which was already operating in several European countries, acquired the Dutch company in the hopes of gaining access to the Dutch market, thereby expanding its business portfolio. The company in question has around 160 selling points, boasts an average turnover of €43 million per year, employs 700 people in the Netherlands alone, and occupies a leadership position in the Dutch market.

The data collection methodology consisted of a single case study. Empirical material was obtained for this study between June and October 2018. This was made up of filed observations as well as 27 interviews with both employees and managers at a range of different functional levels. We started with an analysis of publicly available published material linked to the organization (e.g. company website, newspapers, and articles in the business press). At the same time, existing academic literature was scanned in an attempt to identify an appropriate theoretical framework informed by previous investigations to shape the study (Yin, 2017).

A vast amount of data was categorized, with empirical data gathered in regular intervals over a 6-month period. The organization utilised a centralized decision-making process which depended upon different managerial layers. A focus on attempting to understand the ways in which managers working at the centre of these networks sustain and produce new service system ideas arose from this. The networks of other managers who proved to be influencers and participators in the service innovation process were established, along with the senior directors of the lead company.

Interviews were between 60 and 90 minutes long. They were tape-recorded and subsequently transcribed, and following this, were compiled for qualitative data analysis, culminating in an overall quantity of 2,011 minutes equal to 33.75 hours (Richards and Morse, 2012). In addition to this, observational comments were recorded during on-site visits and were later used to accompany the transcribed interviews, allowing for a more in-depth understanding of the results (Patton, 2002). Once the transcribed interviews were prepared, individual analysis was conducted using MAXQDA 2018 software.

The data was assessed through an iterative grounded theory coding process which transgressed the boundaries between literature, data, and the developing grounded categories (Strauss & Corbin, 1994). Initially, the actions and interactions carried out by the organizational and non-organizational actors in the network were reconstructed and each was linked with incremental innovation development. In evaluating their impact upon the final incremental service development results, the relevance of actions and interactions was established.

Following Gioia et al. (2013), a three-stage coding process was performed. It was implemented by the first and second authors and is still in progress. Initially, we used open coding, which is a descriptive process that uses in vivo codes apparent in interviewees' terminology. Theoretical categories or second-order themes were determined by clustering convergent categories at a higher level of abstraction. Finally, a ground model was constructed through the analysis of the links between second-order themes and aggregate analytical dimensions (i.e. obtaining and disseminating research-based knowledge and its links to practice-based knowledge) along with a more abstract general model. First-order indicators were developed, and patterns were spotted (Patton, 2002; Richards and Morse, 2012). Further investigation of the findings, along with an updated literature review, facilitated the development of the second-order concept, which would subsequently be classified in overarching dimensions, as some evidence proved to be unexpected and intriguing. A model was then created to elucidate the first-order indicators' dynamics, the second-order concepts, and the theoretical themes.

Findings. *While it is worth noting that research is still in progress, preliminary findings have revealed that the company in question developed a sequence of formal activities to enable the acquisition and application of knowledge. The table below shows the preliminary results that emerged from the coding analysis (Table 1).*

Tab. 1: Indicators, concepts, and theoretical themes

First-Order Indicators	Second-Order Concepts	Theoretical Themes
Software helps to organize and accumulate knowledge	*Technological tools assist with daily activities*	**Capturing and sharing practice-based knowledge**
ERP enhances the ways in which emergent problems are fixed at the locations		
Being open to both consumers' feedback and input enhances continuous improvement	*Practice-based knowledge assists exploration activities*	
Tracking market trends, governmental regulations, and competition		
Trials on one site have the potential to be generalized to other sites	*Experimentation encourages exploration and exploitation of knowledge*	**Application of practice-based and research-based knowledge**
Initiatives to improve offerings to customers		
Workshops allow collective reflection about the direction of each department	*Employee development fosters organizational learning*	
Organizations aim to hire employees for a specific role according to skills		
Departments need delegation of tasks	*Need to increase internal collaboration to be more efficient*	**Barriers to knowledge deployment**
Flexibility is required from employees		
Improvisation and compliance with daily delivery of services	*Lack of reflection in action*	
Need to share and promote successful stories from different departments		

As shown in Table 1, a range of tools were used to help to codify the knowledge produced, combined with a perpetual willingness to listen and search for new consumer trends and requirements at selling points (Bertoni et al., 2012). During this primary stage, the organization was able to remain open, allowing customers to continue to co-develop products that they required or wanted (Wu et al., 2015).

Throughout the application phase, the company brought the user-acquired knowledge flow (practice-based knowledge) together with the information generated through traditional exploration activities (research-based knowledge). The organization was able to conduct two main activities in doing this. The first of these was the conception and experimentation of new products. This was one of the foremost actions commencing to foster the social development of new products as knowledge acquired from consumers in the first stage was applied. The second activity was linked to staff training, enabling staff to decode the flow of knowledge acquired from customers effectively.

The company considered all activities highlighted in existing literature on SPD (Bertoni et al., 2012). Employees were encouraged to gather customers' comments and ideas during front-end daily activities in order to produce knowledge devoted to the development of new products and services which could be offered at selling locations. In encouraging final users to give feedback on new product ideas a continuous effort was made to validate and ideate new products and services which could be offered by both front-end employees and managers, (Bertoni et al., 2012). It was only through the cultivation of an environment which fostered the interweaving of activities and the continuous implementation of new products that this action could occur. The organization's interactions with consumers thus highlighted the company's potential of obtaining and applying knowledge to develop new products and services through these means.

Several instruments, which allowed for the capture of research-based (e.g. focus groups with customers) and practice-based knowledge (Wu et al., 2015), enabled the effective acquisition of knowledge by the company. The acquisition of knowledge involves the collection, organization, and storage of information for potential future use (Pee and Kankanhalli, 2016) and so both research-based knowledge and practice-based knowledge was stored in electronic knowledge repositories and document management systems, tools for which were developed internally.

Knowledgeable employees who proved to be good at reflecting upon their interactions (Reckwitz, 2002), a trait obtained either through their professional background or their expertise learned during their time with the organization, proved to be successful in finding purposeful and useful alternatives that could be effectively implemented. These employees tended to be the most experienced and were thus better equipped to tackle the challenges of SPD. They were consequently burdened with the responsibility to bring forward their accumulated knowledge through diverse communication channels (meetings, gatherings, workshops, etc.) with the organization's knowledge seekers (Brown and Duguid, 1991). The accumulated practice-based knowledge, when combined with research-based knowledge "that was kept updated", could then be expanded upon and developed. Informal coaching also proved to be important when recruiting newcomers and training less experienced employees.

Integrated routines were a main focal point for managers seeking to increase knowledge collection, integration, and sharing (Forbes and Schaefer, 2017). These routines were encouraged through activities that increased employees' engagement with customers. Exercises to increase the ability of employees to reflect upon obtained information were also actively pursued (Dougherty, 2003; 2004).

In spite of the success of these activities, the data also shows internal inefficiencies which hindered knowledge deployment, specifically in relation to cross-boundary collaborations between departments, lack of reflection upon actions, lack of clarity regarding roles and decision processes, and a general need to synchronise organizational routines across the company (Willcocks, et al., 2011).

Research limits. *While this paper sought to thoroughly investigate the organizational routines behind effective cross-organizational knowledge flow using a single case study, alternate approaches to SPD are plausible depending on context. This study's main limitation is thus linked to its potentially limited generalizability to other company contexts and sectors.*

Further research should provide a more thorough understanding of the specific protocols and activities that enhance and foster the creation of knowledge through practice-based innovation and SPD.

Practical implications. *This paper highlights the different practices that a large Dutch food service company use to successfully manage knowledge accumulated in collaboration with consumers before applying this to SPD. We analyse the ways in which the company exploits this knowledge when considering the creation of new products and when updating existing products. Furthermore, this paper identifies the barriers that reduce knowledge flow within the company and, as a result, hinder the efficacy of the practices in place.*

Originality of the study. *In order to enable organizations to repeatedly deal with the challenges arising from the dynamic and fast-paced environment that they currently exist in, a vast array of information must be exploited. The synergism between practice-based and research-based knowledge, with regards to new product co-creation, is assessed in this paper. One key finding is that the active use of practice-based knowledge is vital when developing products alongside customers, enabling an effective explorative activity.*

We evidence that practice-based theory and SPD theories require a comprehensive and holistic framework in order to expand upon not only internal resources, but also on the ways in which these resources allow for collective exploration and exploitation habits to occur by taking advantage of various knowledge sources.

To conclude, our research contributes towards nascent literature concerning SPD in several ways (Bertoni et al., 2012; Forbes and Schaefer, 2017; Paulini et al., 2013). Firstly, we assess the ways in which SPD could potentially be endorsed through ambidextrous practices ingrained within practice-based innovation literature; secondly, we provide best practices to follow in embracing SPD within an organization; and thirdly, we shed light on the barriers that can inhibit the success of SPD.

Keywords*: practice-based knowledge; new product development; co-creation; social product development; knowledge; organizational routines; case study; qualitative.*

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